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(REV 12-79-99)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371

2007-00100

U.S. APPLICATION NO. (If known, see 37 CFR 1.5)

09/646583

INTERNATIONAL APPLICATION NO.
PCT/ZA99/00005INTERNATIONAL FILING DATE
19 March 1999PRIORITY DATE CLAIMED
19 March 1998

TITLE OF INVENTION METHOD AND SYSTEM FOR DISTRIBUTING INTERNET TO MULTIPLE USERS

APPLICANT(S) FOR DO/EO/US Christiaan Frederik du Toit Mostert, David Charles Higginson, Martin Roy Higginson, Pierre Hercu

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☐ This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. ☐ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
 - a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☒ has been transmitted by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
 - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☐ have been transmitted by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☐ have not been made and will not be made.
8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 16. below concern document(s) or information included:

11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A **FIRST** preliminary amendment.
☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
14. ☐ A substitute specification.
15. ☐ A change of power of attorney and/or address letter.
16. ☐ Other items or information:

U.S. APPLICATION NO. 09/646583		INTERNATIONAL APPLICATION NO. PCT/ZA99/00005		ATTORNEY'S DOCKET NUMBER 2007-00100	
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17. ☒ The following fees are submitted:

BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :

Neither international preliminary examination fee (37 CFR 1.482)
nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO
and International Search Report not prepared by the EPO or JPO **\$970.00**

International preliminary examination fee (37 CFR 1.482) not paid to
USPTO but International Search Report prepared by the EPO or JPO. **\$840.00**

International preliminary examination fee (37 CFR 1.482) not paid to USPTO but
international search fee (37 CFR 1.445(a)(2)) paid to USPTO **\$690.00**

International preliminary examination fee paid to USPTO (37 CFR 1.482)
but all claims did not satisfy provisions of PCT Article 33(1)-(4) **\$670.00**

International preliminary examination fee paid to USPTO (37 CFR 1.482)
and all claims satisfied provisions of PCT Article 33(1)-(4) **\$96.00**

ENTER APPROPRIATE BASIC FEE AMOUNT =

Surcharge of **\$130.00** for furnishing the oath or declaration later than ☐ 20 ☒ 30
months from the earliest claimed priority date (37 CFR 1.492(e)).

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	
Total claims	20 - 20 =	0	X \$18.00	\$ 00.00
Independent claims	3 - 3 =	0	X \$78.00	\$ 00.00
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ \$260.00	\$ 00.00
TOTAL OF ABOVE CALCULATIONS =				\$ 550.00
Reduction of 1/2 for filing by small entity, if applicable. A Small Entity Statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28).				\$ 550.00
SUBTOTAL =				\$
Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				+
TOTAL NATIONAL FEE =				\$ 550.00
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property				+
TOTAL FEES ENCLOSED =				\$ 550.00
				Amount to be
				refunded:
				charged:
				\$ 550.00

CALCULATIONS
PTO USE ONLY

a. ☐ A check in the amount of \$_____ to cover the above fees is enclosed.


b. ☒ Please charge my Deposit Account No. 03-2769 in the amount of \$ 550.00 to cover the above fees.
A duplicate copy of this sheet is enclosed.

c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any
overpayment to Deposit Account No. 03-2769. A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

Marcella D. Watkins
CONLEY, ROSE & TAYON, P. C.
P. O. Box 3267
Houston, Texas 77253-3267


 SIGNATURE:
 MARCELLA D. WATKINS
 NAME
 36,962
 REGISTRATION NUMBER

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: HIGGINSON, David Charles, §
HIGGINSON, Martin Roy, and §
NEL, Pierre Hercules §
Serial No.: Not Yet Assigned §
Filed: Concurrently Herewith §
For: Method and System for Distributing §
Internet To Multiple Users §

FIRST PRELIMINARY AMENDMENT

Atty. Dkt. No.: 2007-00100
Date: September 19, 2000

Assistant Commissioner for Patents
Washington, D. C. 20231

Sir:

In addition to the U.S. national phase application filed concurrently herewith, Applicant submits the following new claims. Please enter the following amendments before calculating the filing fee for this application and before examination on the merits:

In the Claims:

1. (Amended) A system [(10)] for the simultaneous transmission of information to multiple users over a wireless communication network and for receiving, demodulating, downloading and storing the information at user bases [(14)], the system comprising at least one content provider [(16)]; at least one service provider [(18)]; a transmission infrastructure [(12; 30; 32; 40; 52)]; multiple user bases [(14)], having receivers [(20; 42)] consisting of an antenna in conjunction with a receiver card; a modem for demodulating the broadcast signal; and processing means for storing and enabling subsequent retrieval of the information.
2. (Amended) A system according to claim 1, further including at least one switchable channel [(50)] to be broadcast selectively to a subset of users [(14)] and permitting the activation and or deactivation of a specific channel of information.

3. (Amended) A system according to claim 1 [or 2], further including means for encoding the information signal prior to transmission.
4. (Amended) A system according to claim 1 [or 2], further including means for encrypting the information signal prior to transmission.
5. (Amended) A system according to claim 1 [any one of the preceding claims] wherein the means for encrypting is a function of the user-specific identification code inherent in the receiver card and a key obtained by the user on payment of the channel subscription.
6. (Amended) A system according to claim 1 [any one of the preceding claims] wherein the receiver has an antenna operatively associated therewith.
7. (Amended) A system according to claim 1 [any one of the preceding claims], further including means for compressing the information signal prior to transmission and means for decompressing the information after it has been downloaded.
8. (Amended) A system according to claim 1 [any one of the preceding claims] where the transmission network [(12; 30; 32; 40; 52)] is a radio network.
9. (Amended) A method for facilitating the simultaneous transmission of information to multiple user bases [(14)] over a wireless communications network and for receiving, demodulating, downloading, and storing the information at the user bases [(14)] for subsequent retrieval, the method including the steps of collecting information from at least one content provider [(16)] through an Internet service provider [(18)]; classifying and grouping the information into channels; generating a modulated information signal for transmission; broadcasting the modulated information signal over a wireless transmission network; receiving the transmitted information signal at user bases via suitably tuned receivers; demodulating the received information signal; and storing the information for subsequent retrieval.

10. (Amended) A method according to claim 9, further including the step of automatically refreshing the stored information with an updated version.

11. (Amended) A method as claimed in claim 9 [or 10], further including the step of activating certain channels according to a subscriber's status using software switches at the transmitter.

12. (Amended) A method as claimed in claim 9 [or 10], further including the step of activating certain channels according to a subscriber's status by encrypting information as a function of a user-specific identification code.

13. (Amended) A method as claimed in claim 1 [any one of claims 9 to 12] wherein the step of modulating the information is achieved by using any one or more of modulation techniques selected from the group consisting of Gaussian Minimum Shift Keying (GMSK), Quadrature Polyphase Modulation (QPM) and Galaxy Modulation.

Please add the following new claims:

--15. A system according to claim 2, further including means for encoding the information signal prior to transmission.--

--16. A system according to claim 2, further including means for encrypting the information signal prior to transmission.--

--17. A system according to claim 2 wherein the means for encrypting is a function of the user-specific identification code inherent in the receiver card and a key obtained by the user on payment of the channel subscription.--

--18. A method as claimed in claim 10, further including the step of activating certain channels according to a subscriber's status using software switches at the transmitter.--

--19. A method as claimed in claim 10, further including the step of activating certain channels according to a subscriber's status by encrypting information as a function of a user-specific identification code.--

--20. A system for the simultaneous transmission of information to multiple users over a wireless communication network and for receiving, demodulating, downloading and storing the information at user bases, comprising:

at least one content provider providing information;

at least one service provider converting the information into an information signal;

a transmission infrastructure for transmitting the information signal as a broadcast signal;

multiple user bases having receivers consisting of an antenna in conjunction with a receiver card, the bases receiving the broadcast signal;

a modem for demodulating the received broadcast signal;

processing means for storing and enabling subsequent retrieval of the information;

and

at least one switchable channel to be broadcast selectively to a subset of users and permitting the activation and or deactivation of a specific channel of information.--

Respectfully submitted,



Marcella D. Watkins

Reg. No. 36,962

CONLEY, ROSE & TAYON

P.O. Box 3267

Houston, Texas 77253-3267

(713) 238-8000 (Phone)

(713) 238-8008 (Fax)

METHOD AND SYSTEM FOR DISTRIBUTING INTERNET TO MULTIPLE USERS

TECHNICAL FIELD

This invention relates to a method and system for simultaneously distributing information to a plurality of user bases. More specifically, it relates to the wireless transmission of information from a broadcaster to multiple receivers for storage and access at the user's convenience.

BACKGROUND ART

With the introduction of the Internet and World Wide Web many users have access to information over the Internet. Although the availability of information has been advanced with so-called web sites, downloading and accessing of information is a time consuming process due to limited data throughput and transfer rates over standard telephone lines.

Modulation techniques that sacrifice signal data for a lower ambient noise threshold while maintaining a relatively high data transfer rate over a fixed bandwidth channel are conventionally used in the telecommunications industry. Examples of these advanced modulation techniques are Gaussian Minimum Shift Keying (GMSK), Quadrature Polyphase Modulation (QPM) and Galaxy Modulation (GM). However, technologic advancements in the field of electronics and the subsequent reduction in the size and cost of electronic components, has enabled these modulation techniques to be implemented in broadcasting systems.

In most instances, it is required that users of information networks purchase a modem and pay monthly subscription fees to an Internet Service Provider (ISP). Subscribers are entitled to dial into an ISP at a Point of Presence (POP), and are subsequently granted access to the information superhighway.

Research has shown that certain pre-registered web sites are favoured above others and are accessed more frequently. It has also revealed that certain favoured web sites are accessed more for the purpose of obtaining information, such as stock prices, news, weather, etc., rather than for purely for entertainment.

The process of logging into an ISP and subsequently being granted access to a web site for downloading information from the site, is tedious and in most cases time-consuming. Furthermore, most users access the Internet during business hours, which is the time when telephone costs are most expensive.

The Internet typically forwards information on a "pull" system which is facilitated by a dial-up connection. The current "Push" system does not allow large quantities of information to be provided to multiple users, due to the limitation of the telecommunications network.

A present dial-up connection to the Internet allows the user to request the service provider to transmit large amounts of information via satellite, to avoid lengthy download times. However, the transmission has to be requested by the user and the information is independently sent by the service provider to a specific user for each request.

European Patent Application No. EP-A-O 794 642 entitled "Terminal device for using telecommunication services" in the name of Nokia Mobile Phones Limited discloses a means for connecting a terminal device with a telecommunication network. The terminal device is connected to the telecommunications network and retrieves information from the network only when it is ready or set up to receive the information. The information is received on demand, when a communication link exists between the network and the device, only by a specific terminal device and the information is not broadcast for reception by a plurality of terminal devices.

OBJECTIVES OF THE INVENTION

Accordingly, it is an object of the present invention to provide a system and method for simultaneously broadcasting large quantities of information over the airwaves to a plurality of receivers, as well as for downloading information at a user base with which the above disadvantages of known systems could at least be alleviated.

Furthermore, it is an object of the invention to provide users with a system that may enable and/or facilitate one or more of the following:

- product delivery systems – these are orders placed via the Internet or otherwise for data based products, such as software, which can be delivered effortlessly without time-consuming and costly Internet downloads. The sale of music CD's is a perfect application for the invention as a product delivery system;
 - mail delivery notification – alerting the user to the presence of new mail. While
-

E-mail remains the fastest possible communication platform, most people have access to undedicated telephone systems with the result that the mailbox is checked on an intermittent basis. It is only those ISP subscribers with costly dedicated digital connectivity that are notified of new mail, seconds after it is sent. The invention enables delivery notifications to be broadcast as E-mail is sent, making it possible for the user to log into the Internet and access their mail as it arrives;

- downloads – transfer of information from a web page to a user base. While the Internet offers users an incessant source of free product downloads, the speed and associated costs remain a deterrent. The invention enables requested information to be transmitted inexpensively to a plurality of user bases without the tedious and costly exercise of Internet downloads;
- business information – receiving updates of business orientated information such as share-prices, exchange rates and the like, with the use of a subscription service. Similar systems are already in place in telecommunication systems, once again only effective for those who enjoy dedicated connectivity;
- community and crime prevention applications are also limitless - the timeous delivery of information such as stolen credit card lists, stolen vehicles, missing persons, etc. for the identification of fraud and combating of crime; and
- delivery of internet content to less privileged or rural areas without telecommunications systems and facilities.

DISCLOSURE OF INVENTION

According to a first aspect, the invention provides a system for facilitating the simultaneous transmission of information to multiple user bases over a wireless communications network and for receiving, demodulating, downloading, and storing the

information at the user bases for subsequent retrieval, the system comprising at least one content provider; at least one service provider; a transmission infrastructure; multiple user bases, having receivers consisting of an antenna in conjunction with a receiving card; a modem for demodulating the broadcast signal; and processing means for storing and enabling subsequent access of the information.

The system may include means to manage one or more switchable channels, enabling them to be broadcast selectively to a certain subset of users by activating and/or deactivating a specific channel of information.

The transmitted information signal may incorporate means for encoding or encrypting, the corresponding receiver including means for decoding or decrypting the signal at the user base.

The means for encoding and encrypting may be provided with an encryption algorithm that is a function of the user-specific identification code inherent in the receiver card, and further may be provided with a key obtained on payment of the desired channel subscription, ensuring that only paying subscribers are able to decrypt the signal.

The receiver may have an antenna associated with it as part of a computer module, alternatively, the antenna may be a separate unit connectable with a display and processing device.

The system may include means for compressing the information signal and the user base may include means for decompressing the information after it has been downloaded.

The system may use existing transmission infrastructure such as that used by radio companies.

According to a second aspect of the invention there is provided a method for facilitating the simultaneous transmission of information to multiple user bases over a wireless

communications network and for receiving, demodulating, downloading, and storing the information at the user bases for subsequent retrieval including the steps of collecting information from at least one content provider; classifying and grouping the information into channels; generating a modulated information signal for transmission; broadcasting the modulated information signal over a wireless transmission network; receiving the transmitted information signal at user bases via suitably tuned receivers; demodulating the received information signal; and storing the information for subsequent retrieval.

The method may include a step of automatically refreshing the stored information with an updated version.

The step of modulating the information signal may be achieved using any one or more of modulation techniques selected from the group consisting of Gaussian Minimum Shift Keying (GMSK), Quadrature Polyphase Modulation (QPM) and Galaxy Modulation.

The step of modulating the information signal may include implementing a redundancy check to ensure that the received signal is accurate and to enable a corrupted signal to be reconstructed at the receiver.

BRIEF DESCRIPTION OF DRAWINGS

Preferred embodiments of the invention will now be described by means of non-limiting examples only, with reference to the accompanying diagrams wherein:

- Figure 1: is a block diagram of a first embodiment of the invention, which uses a RF transmission network to distribute information;
- Figure 2: is a block diagram of a second embodiment of the invention, which uses a cellular transmission network to distribute information;
- Figure 3: is a block diagram of a third embodiment of the invention, which uses a satellite transmission network to distribute information;
- Figure 4: is a diagram of a fourth embodiment of the invention where the service provider manages the information into various channels before forwarding it to a transmission network to be broadcast; and

Figure 5: is a block diagram illustrating a system of switches for implementing the selective distribution of information to subscribers, according to the invention.

BEST MODES FOR CARRYING OUT THE INVENTION

Figure 1 shows an embodiment of a system 10 according to the invention, which uses a radio frequency transmitter 12 for distributing information to user bases 14, from one or more content providers 16, which could be an Internet service provider, university or commercial institution such as a firm of stock brokers, magazine company, news network or software developer. Users subscribe or register themselves with a content provider 16 at a fee. The content providers prepare the information to be distributed to their subscribers and forward it to a service provider 18 that manages and classifies the data to be transmitted. Existing transmission infrastructure 12, such as that used by radio companies, is used to broadcast the channels of information over a wireless network by modulating the information and transmitting the information by any previously known method. At the user base 14, a PC-based receiving station, comprising an antenna 20, a specialised receiver card in the form of a radio card (not shown) and processing and storage means (not shown), is used to receive, demodulate, process and store the incoming information signal. Downloads are stored and automatically refreshed with up-to-date information. This information is retrieved by the user, and manipulated with appropriate software, such as conventional Internet browsers, customized software packages or applets.

Figure 2 relates, specifically, to the transmission of information to multiple users via a cellular network including one or more service providers 18, which are connected to a cellular network operator 30, and one or more content providers 16. The cellular network operator 30 has multiple transmission areas serviced by base stations 32. At the user base 14, a remote terminal, such as a PC, is equipped with receiver means for receiving the cellular transmission. As in the case of RF broadcasting, the downloaded information is viewed on display means and manipulated with peripheral devices such as a keyboard and/or mouse.

Figure 3 relates, specifically, to the transmission of information to multiple users via a satellite network together with one or more service providers 18, which are connected to the satellite network operator 40, and one or more content providers 16. The satellite network is, in this example, the transmission medium for transmitting the information to a low earth-orbiting satellite, which relays the transmission to multiple users. At the user base, a satellite dish 42 is connected to a PC for display. In another example, it is envisaged that users could download the broadcast with a satellite dish connected to a set-top box.

Figure 4 shows an example of where a service provider 18 manages the content 50 to be broadcast over a wireless communication means 52 for reception by subscribers at their user bases 14.

Figure 5 is a block diagram illustrating the use of one or more switches as part of the managing device. Included in the information management system of the service provider is an electronic switching system 60 that ensures that only paying subscribers have decoding means to subscription channels. The encoding or encryption means is a function of the user access code inherent in the radio card, which enables the selective receiving of information by multiple users, i.e. only paying users are able to decode subscription channels.

While not being part of the receiver, clearly software in the PC is in overall control of the receiver unit. This software provides for various functions including issuing commands to tune the receiver, capture incoming data, decompress the information and decode or decrypt the data based on decryption keys provided to each user on payment of their subscription. Such decryption allows, for example, certain channels to be decoded by the intended recipient and not by other users of the system.

Likewise, prior to transmission by the service provider, suitable encryption and/or compression of data is required as well as directing the data to specific addresses or to general receivers.

It will be appreciated that certain embodiments of the invention have been described herein and that other embodiments, variations or modifications should therefore be understood to fall within the scope of the invention as claimed hereafter.

CLAIMS

1. A system (10) for the simultaneous transmission of information to multiple users over a wireless communications network and for receiving, demodulating, downloading and storing the information at user bases (14), the system comprising at least one content provider (16); at least one internet service provider (18); a transmission infrastructure (12; 30; 32; 40; 52); multiple user bases (14), having receivers (20; 42) consisting of an antenna in conjunction with a receiver card; a modem for demodulating the broadcast signal; and processing means for storing and enabling subsequent retrieval of the information.
2. A system according to claim 1 including at least one switchable channel (50) to be broadcast selectively to a subset of users (14) and permitting the activation and or deactivation of a specific channel of information.
3. A system according to claim 1 or 2 including means for encoding the information signal prior to transmission.
4. A system according to claim 1 or 2 including means for encrypting the information signal prior to transmission.
5. A system according to any one of the preceding claims wherein the means for encrypting is a function of the user-specific identification code inherent in the receiver card and a key obtained by the user on payment of the channel subscription.
6. A system according to any one of the previous claims wherein the receiver has an antenna operatively associated therewith.
7. A system according to any one of the preceding claims including means for compressing the information signal prior to transmission and means for decompressing the information after it has been downloaded.
8. A system according to any one of the preceding claims where the transmission network (12; 30; 32; 40; 52) is a radio network.
9. A method for facilitating the simultaneous transmission of information to multiple user bases (14) over a wireless communications network and for receiving, demodulating, downloading, and storing the information at the user bases (14) for subsequent retrieval, the method including the steps of collecting information from at least one content provider (16) through an internet service provider (18); classifying and grouping the information into channels; generating a modulated information signal for transmission; broadcasting the modulated

information signal over a wireless transmission network (12; 30; 32; 40; 52); receiving the transmitted information signal at user bases (14) via suitably tuned receivers (20; 42); demodulating the received information signal; and storing the information for subsequent retrieval.

10. A method according to claim 9 including the step of automatically refreshing the stored information with an updated version.
11. A method as claimed in claim 9 or 10 including the step of activating certain channels according to a subscriber's status using software switches (60) at the transmitter.
12. A method as claimed in claim 9 or 10 including the step of activating certain channels according to a subscriber's status by encrypting information as a function of a user-specific identification code.
13. A method as claimed in any one of claims 9 to 12 wherein the step of modulating the information signal is achieved by using any one or more of modulation techniques selected from the group consisting of Gaussian Minimum Shift Keying (GMSK), Quadrature Polyphase Modulation (QPM) and Galaxy Modulation.
14. A method as claimed in claim 13 where the modulation technique includes a redundancy check.

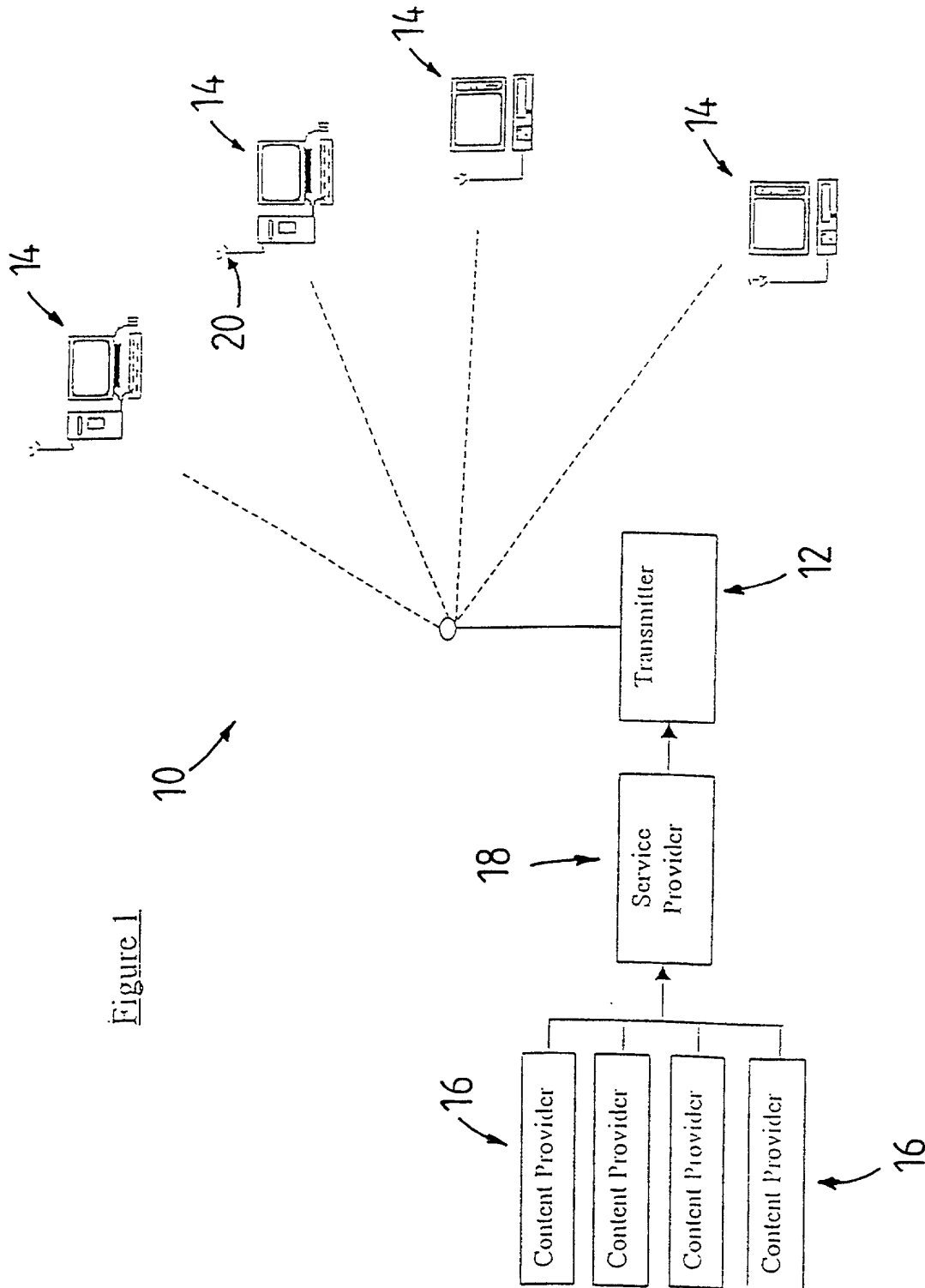


Figure 1

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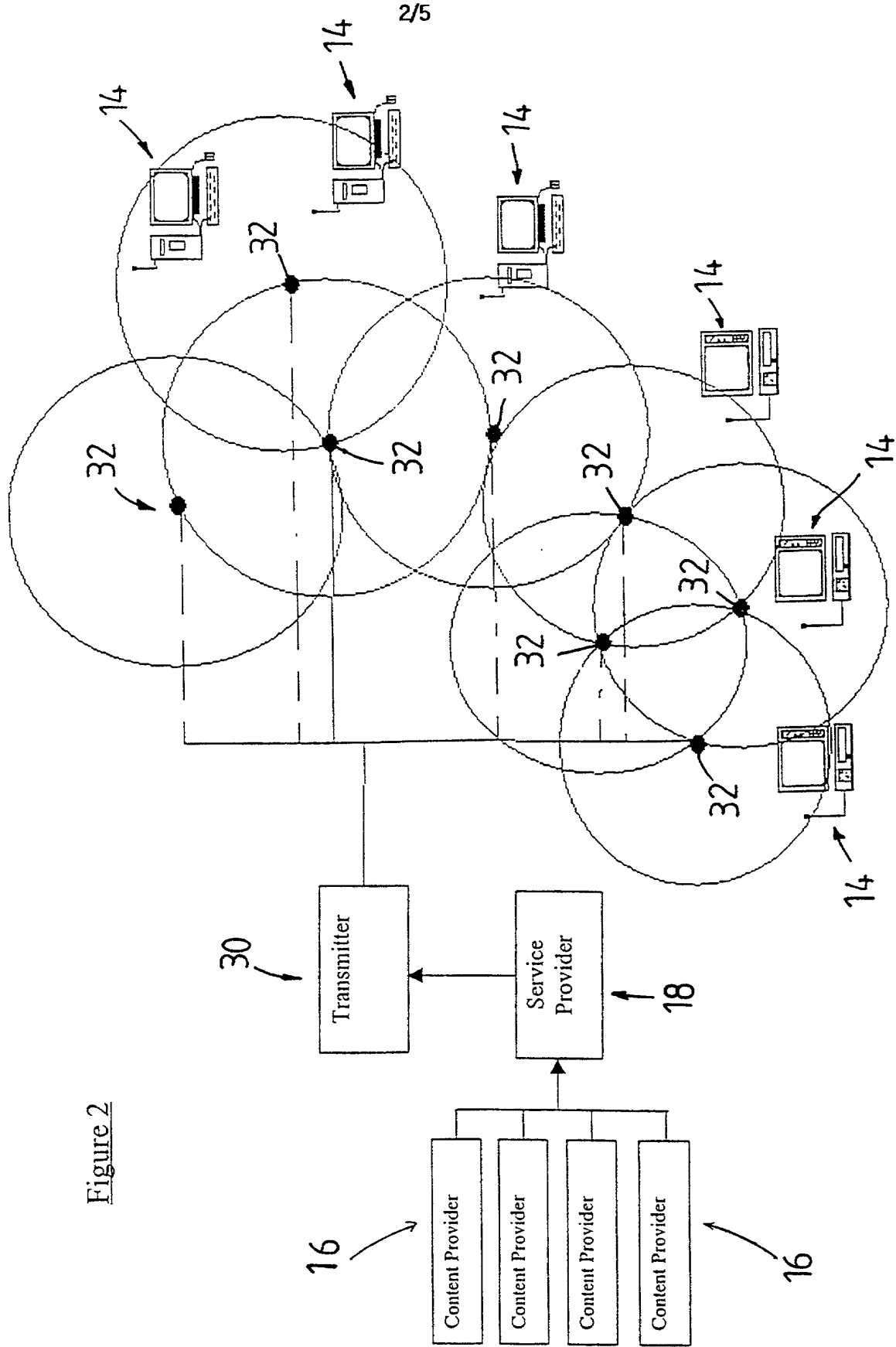


Figure 2

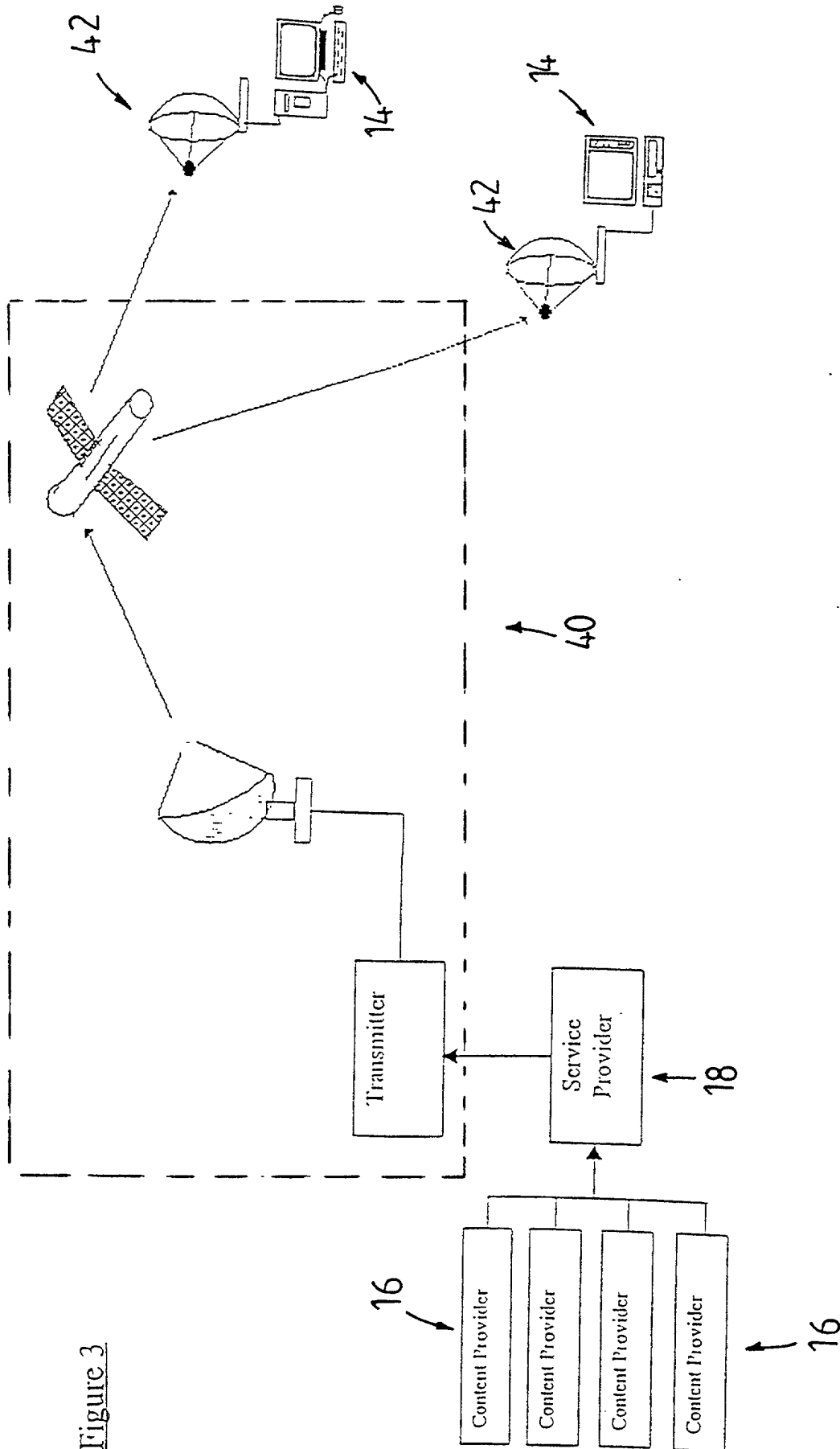
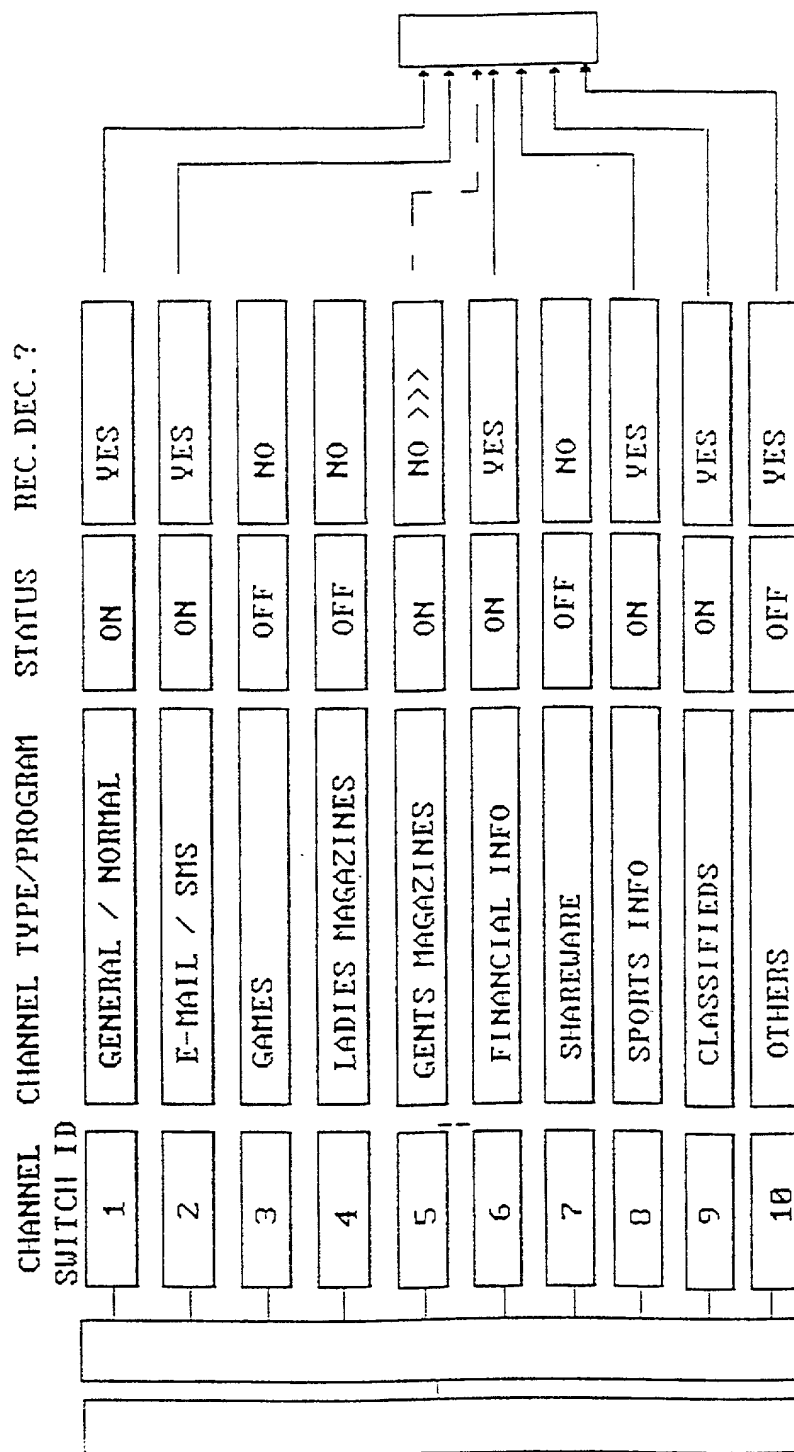


Figure 3



60

Figure 5

DECLARATION**SOLE/JOINT INVENTOR
ORIGINAL/SUBSTITUTE/CIP**

As a below named inventor, I hereby declare that: my residence, post office address, and citizenship are as stated below next to my name. I believe I am the original, first, and sole inventor (if only one name is listed below) or a joint inventor (if plural inventors are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: **Method and System for Distributing Internet to Multiple Users** as described in the **patent Application Serial No. 09/646,583, filed September 19, 2000**

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above; that I do not know and do not believe the same was ever known or used in the United States of America before my or our invention thereof, or patented or described in any printed publication in any country before my or our invention thereof or more than one year prior to this application; that the invention has not been patented or made the subject of an inventor's certificate issued before the date of this application in any country foreign to the United States of America on an application filed by me or my legal representative or assigns more than twelve months prior to this application; and that I acknowledge the duty to disclose information of which I am aware which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations § 1.56(a). Such information is material when it is not cumulative to information already of record or being made of record in the application, and

- (1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or
- (2) It refutes, or is inconsistent with, a position the applicant has taken or may take in:
 - (I) opposing an argument of unpatentability relied on by the Office, or
 - (II) asserting an argument of patentability.

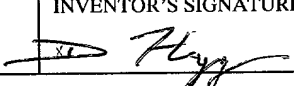
I hereby claim foreign priority benefits under Title 35, United States Code § 119 of any foreign application(s) for patent or inventor's certificates listed below and have also identified below any foreign application(s) having a filing date before that of the application(s) on which priority is claimed:

COUNTRY	APPLICATION NUMBER	DATE OF FILING	PRIORITY CLAIMED UNDER 35 USC 119
PCT	ZA99/00005	19 March 1999	


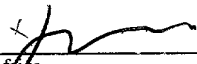
I hereby claim the benefit under Title 35 United States Code § 120 and/or § 119(e) of any United States application(s) listed below and, insofar as any subject matter of any claim of this application is not disclosed in the prior United States Application, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations § 1.56(a) which occurred between the filing date of the prior application and the national PCT International filing date of this application:

N/A

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

FULL NAME OF SOLE OR FIRST INVENTOR Christiaan Frederick du Toit Mostert		INVENTOR'S SIGNATURE 	DATE 15/11/2000
RESIDENCE No. 5 Valley Road, Westcliff, Johannesburg 2193, South Africa		CITIZENSHIP Z.A.	
POST OFFICE ADDRESS Same			
FULL NAME OF SECOND JOINT INVENTOR DAVID CHARLES HIGGINSON		INVENTOR'S SIGNATURE 	DATE 16/11/2000
RESIDENCE 49 Joseph Avenue, Northcliff, Johannesburg, 2115, Republic of South Africa		CITIZENSHIP Z.A.	
POST OFFICE ADDRESS Same			

3-00

FULL NAME OF THIRD JOINT INVENTOR MARTIN ROY HIGGINSON	INVENTOR'S SIGNATURE 	DATE 16 Nov. 2000
RESIDENCE 52 Bianca Avenue, Berario, Johannesburg, 2195, Republic of South Africa ZAX		CITIZENSHIP Z.A.
POST OFFICE ADDRESS Same		
FULL NAME OF FOURTH JOINT INVENTOR PIERRE HERCULES NEL	INVENTOR'S SIGNATURE 	DATE 1/12/2000
502 Tennessee Street, Faerie Glen, Pretoria, 0043, Republic of South Africa ZAX		CITIZENSHIP Z.A.
POST OFFICE ADDRESS Same		

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